

A VERIFICATION OF THE OCCURRENCE OF YUCCA WHIPPLEI IN ARIZONA

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With plates 114-117

ON APRIL 3, 1858, Professor Newberry, accompanying Lieutenant Joseph C. Ives on his expedition to ascertain the navigability of the Colorado River, collected at the mouth of Diamond Creek, Mohave Co., Arizona, leaves of a *Yucca* which Dr. Torrey in 1860 determined as identical with the species which, discovered by Mr. Arthur Schott near San Pasqual in southern California, he had in 1859 named *Yucca Whipplei*. Except for the Newberry collection, unverified hitherto, the species is known only from California. Doctor Trelease in 1902 expressed doubt as to the correctness of the early record because "the locality is so far from the known range . . ."

Since the Boulder Dam project threatens to flood the Diamond Creek region it was felt important to attempt to verify the Arizona record. On May 5, 1932, with O. E. Hamilton, chauffeur-photographer, and two Indians from the Hualapai Reservation, Charles McGee and his father, the author made a trip to the mouth of Diamond Creek. Starting from Peach Spring a considerable distance was travelled by motor truck, the car following the course of a dry stream and demonstrating considerable agility in climbing boulders; the last part of the trip was made on horseback.

The creek or river received its name according to the Indians from Diamond Peak which is situated at its mouth and which in form is distinctly suggestive of the cut gem; Mr. Charles A. Coolidge of Boston, who, in 1887, with Mr. F. L. Olmsted and Professor Agassiz visited the region, says that the name is derived from the presence of small diamonds in the rock.

Diamond Creek which flows in a general northwesterly direction joins, near its mouth, the canyon through which we had descended, and empties into the southern side of the Colorado below the western end of the Grand Canyon; the elevation at this point is approximately 1500 feet but steep sides lead upward from the canyons to mesas 4000-5000 feet higher.

No plants of the desired *Yucca* were seen until within a short distance of the Colorado but then one was discovered several hundred feet

up the western slope of Diamond Creek, from a distance, in color especially, easily to be mistaken for a plant of *Dasyllirion Wheeleri* though in form more symmetrical. Eventually a possible ten plants were located, most overhanging the Colorado, but none unfortunately in flower or in fruit. When the Indians understood what plant was sought they expressed familiarity with it and said that the heart was sweet and excellent eating when buried and roasted under hot coals. They also said that it was to be found considerably further to the west, always along the Colorado, but that this region was accessible only on foot or horseback and three days in from Peach Spring.

The leaves on the plants examined appeared to be unusually long for the species, most about 3 feet in length; the blade tapered from union with base to apex, was more or less four-sided, below distinctly keeled, above marked by a narrow central rib, the surface finely striate but not "watered" as is that on many of the California specimens, in color a pale sage-green, the margins pale yellow, horny, entire and sharp or somewhat finely denticulate, the spine acicular, the tip a dark maroon; the plants were 3 - 4 feet broad, solitary and widely separated.

Still desirous of finding flowers, fruit, or preferably both, and aided by the work of the Civilian Conservation Corps which a month or so before had opened up a crude road to the Colorado at a considerable distance to the west of Diamond Creek, a second trip in search of the plant was made on April 29, 1934. Starting a little east of Valentine the road wound circuitously northwestward over the mesas for about 60 miles, crossing lands of the Public Domain and of the Hualapai Reservation until it arrived at New Water Point; from this promontory one looks across and west to the Lower Granite Gorge of the Colorado and east, across Quartermaster Canyon, towards the west end of the Grand Canyon.

No *Yucca Whipplei* had been seen to the rim's edge but any discouragement felt was dissipated as one descended into the gorge for it was noted at once, again not in flower but with plentiful old and characteristic fruit. Despite exceedingly strong wind photographs were obtained as well as specimens, these now in the Herbarium of the Arnold Arboretum.

As at Diamond Creek the plants were solitary and appeared to die after fruiting; none were caespitose; they grew at a considerable distance from each other and not in great numbers. For the most part the leaves were shorter. One old fruit stalk, here illustrated, was 9 feet tall, the scape 3 feet in length, stout below, 14 inches in circumference just above the swollen base, and tapered upward to the tip; the inflorescence proper

6 feet in length, slender-ovoid, the lower branchlets about 6 inches long, the uppermost 3 - 4 inches, the tip racemose for about 8 inches.

The slopes of the Canyon were searched with field-glasses but no flowers were discovered. The Indian guide felt that, in view of the mild winter, the plants should have been in bloom if flowers were to be produced in the current year. He stated, and it appeared to be the case, that the plant never is found on the mesas above but always below the Canyon rim, descending thence to the base of the gorge. The elevation at New Water Point is approximately 5000 feet, the Colorado some 4000 feet lower.

How far to the east and west along the river *Yucca Whipplei* may be found is not known; the author has never heard of its occurrence on the much-botanized south side of the Grand Canyon proper to the east, nor was it seen to the west in the Boulder Dam region or at the crossing of the Colorado at Searchlight; nor could search or inquiry offer encouragement as to its possible presence on the north side of the Colorado, certainly in so far as the Kaibab Forest region is concerned. The plant would appear to be confined to the southern side of the river and to extend for no great distance, in the southwestern use of the term, either to the east or west of the regions visited. It is unfortunate that this interesting extension of range may eventually be obliterated.

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